Cloning Vector pUC118

Product Information Sheet
V33302

SUMMARY

shipped at RT; store at 4 °C

For research use only

Product

pUC118 high copy phagemid vector for cloning and replication in *E. coli* and production of single-stranded DNA with helper phage M13KO7; suitable for "blue-white screening" technique.

Description

pUC118 is a high copy phagemid cloning vector for cloning and replication in *E. coli* and production of single-stranded DNA. It has been constructed by inserting the intergenic region (IG region) of the M13 phage DNA into the NdeI site of the pUC18 plasmid. This IG region contains the M13 origin of replication. Infection by the helper phage M13KO7 induces the production of single stranded pUC118 DNA, which is predominantly packaged into phage particles and then is released from bacterial cells. In addition, there is almost no contamination by the single stranded DNA of the helper phage. Using this system, single stranded DNA from large DNA fragments (up to 7 kb) can be stably obtained without deletion.

pUC118 (as pUC18) bears the ampicillin resistance gene and the pMB1 origin of replication from pBR322. However, the pMB1 of pUC118 differs from the pBR322 origin by a single point mutation and the lack of the *rop* gene, leading to a high copy number. Additionally, pUC118 contains the lac operon of *E. coli* with CAP binding site, *lac* promoter (P_{lac}), Lac repressor (LacR) binding site, and the 5'-terminal part of the *lacZ* gene encoding the N-terminal part of β-galactosidase (source – M13mp18 phage vector). This 5'-terminal part of the *lacZ* gene contains the multiple cloning site (MCS), and its expression is IPTG inducible. It is capable of intra-allelic α-complementation of a partially deleted chromosomal *lacZ* copy (*E. coli* host strain: l*acZΔM15*, e.g., DH5α, DH10B, JM101, JM109). In the presence of IPTG, transformants expressing both fragments of the ß-galactosidase (the vector encoded N-terminal part and the chromosomal encoded C-terminal part) will form a functional enzyme and can be detected as blue colonies on agar plates containing X-Gal. Cloning into the multiple cloning site will lead to a nonfunctional N-terminal fragment of the ß-galactosidase and to the abolishment of α-complementation. White colonies will form on X-Gal/IPTG plates.

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Revised January 2014

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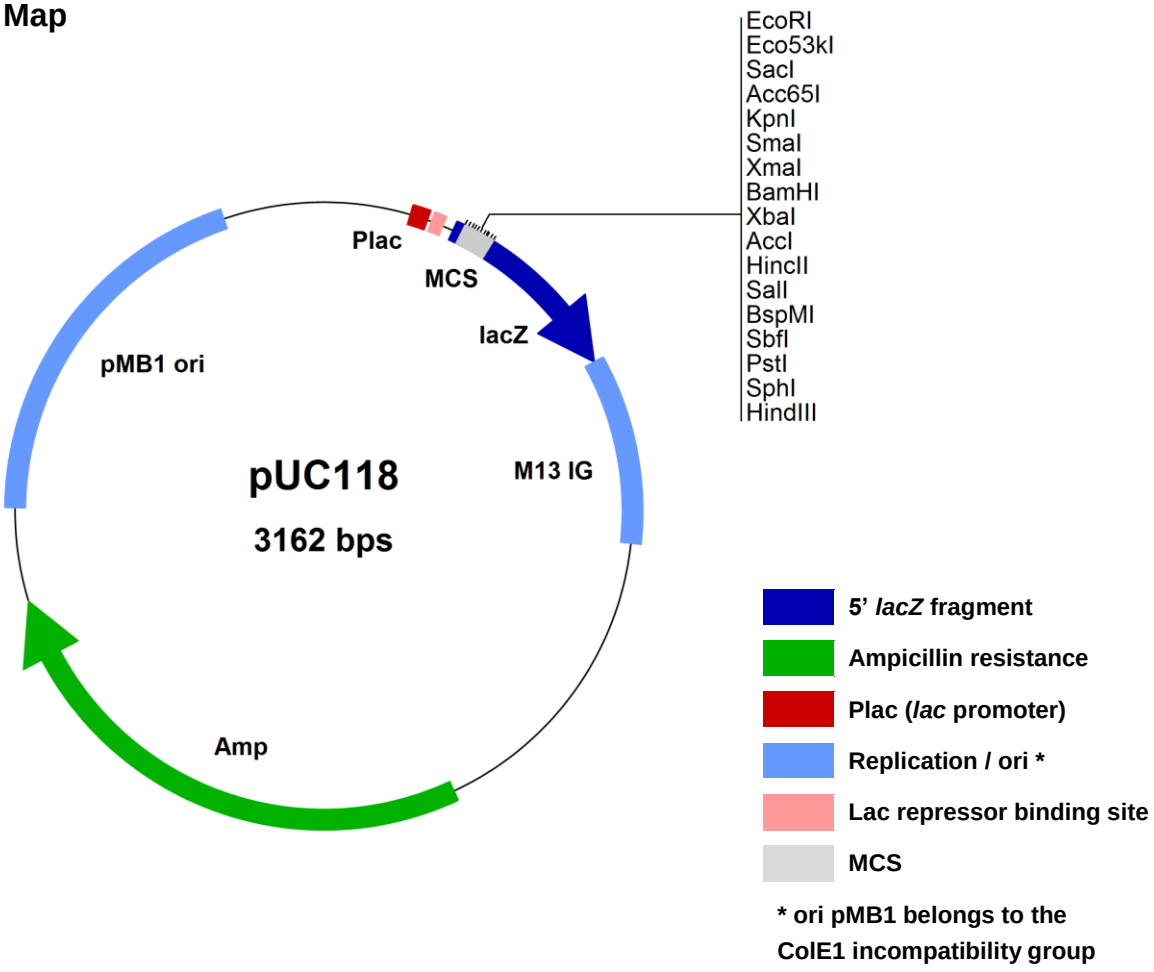
Vector Map



Quality Warranty

DNA concentration and purity was checked by UV spectrophotometry. All restriction sites specified in the vector map were checked by sequencing. Functionality of α-complementation was checked by transformation and plating the transformants on IPTG/X-Gal agar plates.

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References

Vieira J & Messing J (1987) Production of single-stranded plasmid DNA; Methods Enzymol. 153:3-11

Order Information, Shipping and Storage

Order#	Product	Amount
V33302	pUC118, lyophilized DNA	25 µg
shipped at room temperature (RT); store at 4 °C. Once the DNA has been dissolved in sterile water or buffer we recommend storage at -20 °C.		

Related Products

Order#	Product	Amount
MTAQK0	MoBiTaq-K (25 U/µl)	250 U
STAQ02	SuperTaq (5 U/µl)	250 U
STAQH1	Super Taq-HC (15 U/µl)	250 U
ENZ-286-1PS	Recombinant T4 DNA Ligase	20,000 U
GE-TLK0110-1	TurboLigation™ Kit	100 rxn
V33402	pUC119 vector DNA	25 µg
RIBA25	RNAse A, 90 U/mg (Kunitz)	25 mg
A1414-25GMAG	Ampicillin, sodium salt	25 g
I1312-1gAG	IPTG (Isopropyl-Beta-D-thiogalactoside)	1 g
X1015-5gAG	X-GAL	5 g
04004G	MoBiTec Agarose LE	500 g

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